

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Dharshini C. Fongalland et al. : Art Unit:  
Application No.: To Be Assigned : Examiner:  
Filed: Herewith :  
FOR: SUBSTRATE BINDER :

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
Washington, DC 20231

SIR:

Prior to examination, please amend the above-identified application as follows.

IN THE SPECIFICATION:

Please replace the paragraph beginning at page 5, line 14, with the following:

The substrate of the invention is suitable for use in the preparation of a composite membrane for use in a fuel cell. When for use in a fuel cell, the total thickness of the membrane is less than 200 $\mu$ m and preferably less than 100 $\mu$ m.

Please replace the paragraph beginning at page 6, line 18, with the following:

2. Perfluorinated or partially-fluorinated polymers further having aromatic rings, such as those described in PCT patent specifications numbers WO 95/08581 and WO 97/25369, which have been functionalised with SO<sub>3</sub>H, PO<sub>2</sub>H<sub>2</sub>, PO<sub>3</sub>H<sub>2</sub>, CH<sub>2</sub>PO<sub>3</sub>H<sub>2</sub>, COOH, OSO<sub>3</sub>H, OPO<sub>2</sub>H<sub>2</sub>, and/or OPO<sub>3</sub>H<sub>2</sub>. Also included are radiation- or chemically-grafted perfluorinated polymers, in which the perfluorinated carbon chain is activated by radiation or chemical initiation in the presence of a monomer, such as styrene, which can be functionalised to contain an ion-exchange group. Suitable perfluorinated polymers